Claims

1. A method for designing an infrastructure to perform one or more tasks in an environment of resources comprising the steps of:

determining one or more relations among the resources;

constructing a graph representation of said relations and the resources;

determining one or more paths through said graph representation wherein each of said paths represents a process for performing at least one of the tasks; and

determining at least one group of those of said resources that lie along said one or more paths, said at least one group having a minimal risk.

2. A method for designing an infrastructure as in claim 1 wherein the one or more tasks comprise producing one or more products.

3. A method for designing an infrastructure as in claim 1 wherein the resources comprise at least one of the following: one or more raw materials, one or more intermediate products, and one or more operations.

4. A method for designing an infrastructure as in claim 1 wherein the relations comprise at least one of the following: one or more compliments, and one or more substitutes.

5. A method for designing an infrastructure as in claim 1 wherein said graph representation comprises a set of vertices corresponding to the resources and a set of edges corresponding to the relations.

6. A method for designing an infrastructure as in claim 1 wherein said determining at least one group having a minimal risk step comprises the steps of:

determining a plurality of anti-correlated families wherein each of said anti-correlated families contains two or more of said resources lying along said one or more paths that are anti-correlated; and

determining one or more perspective groups of said resources from said plurality of anti-correlated families.

7. A method for designing an infrastructure as in claim 6 further comprising the step of:

receiving one or more time series corresponding to one or more of said groups of resources.

8. A method for designing an infrastructure as in claim 7 further comprising the step of:

determining correlations among said resources.

9. A method for designing an infrastructure as in claim 8 wherein said determining a plurality of anti-correlated families step comprises the steps of:

selecting at least one of said resources to be a first member of one of said anti-correlated families;

determining one or more of said resources having a value of said correlation with said first member of said anti-correlated family that is less than a negative limit; and

including said one or more resources having a correlation value that is less than the limit as additional members in said anti-correlated family.

10. A method for designing an infrastructure as in claim 9 further comprising the step of repeating said steps of claim 9 for another one of said plurality of resources to determine another of said plurality of anti-correlated families.

11. A method for designing an infrastructure as in claim 10 further comprising the step of:

eliminating drift from said one or more time series to create corresponding one or more detrended time series.

12. A method for designing an infrastructure as in claim 11 wherein said correlations among said resources is determined from said one or more time series.

13. A method for designing an infrastructure as in claim 12 wherein said correlations are shifted in time.

14. A method for designing an infrastructure as in claim 13 wherein said determining one or more perspective groups step comprises the step of selecting one of said plurality of anti-correlated families;

determining percentages of said resources from said selected family to include in one of said perspective groups.

15. A method for designing an infrastructure as in claim 14 further comprising the steps of repeating said selecting step and said determining a percentage of each of said assets step with different ones of said anti-correlated families to determine said one or more perspective groups.

16. A method for designing an infrastructure as in claim 15 wherein said percentages of said resources from said selected family are determined from said perspective group with a minimal variance.

17. A method for designing an infrastructure as in claim 16 further comprising the step of choosing at least one of said perspective portfolios as said portfolios of assets.

18. Computer executable software code stored on a computer readable medium, the code for designing an infrastructure to perform one or more tasks in an environment of resources, the code comprising:

code to determine one or more relations among the resources;

code to construct a graph representation of said relations and the resources;

code to determine one or more paths through said graph representation wherein each of said paths represents a process for performing at least one of the tasks; and

code to determine at least one group of those of said resources that lie along said one or more paths, said at least one group having a minimal risk.

19. Computer executable software code stored on a computer readable medium, the code for designing an infrastructure to perform one or more tasks in an environment of resources as in claim 18, the code further comprising:

code to determine a plurality of anti-correlated families wherein each of said anti-correlated families contains two or more of said resources lying along said one or more paths that are anti-correlated; and

code to determine one or more perspective groups of said resources from said plurality of anti-correlated families.

20. A programmed computer system for designing an infrastructure to perform one or more tasks in an environment of resources comprising at least one memory having at least one region storing computer executable program code and at least one processor for executing the program code stored in said memory, wherein the program code includes

code to determine one or more relations among the resources;

code to construct a graph representation of said relations and the resources;

code to determine one or more paths through said graph representation wherein each of said paths represents a process for performing at least one of the tasks; and

code to determine at least one group of those of said resources that lie along said one or more paths, said at least one group having a minimal risk.

21. A programmed computer system for designing an infrastructure to perform one or more tasks in an environment of resources comprising at least one memory having at least one region storing computer executable program code and at least one processor for executing the program code stored in said memory as in claim 20, wherein the program code further includes:

code to determine a plurality of anti-correlated families wherein each of said anti-correlated families contains two or more of said resources lying along said one or more paths that are anti-correlated; and

code to determine one or more perspective groups of said resources from said plurality of anti-correlated families.